

Sub 3

SEQUENCE LISTING

5 (1) GENERAL INFORMATION

(i) APPLICANT: Darrell Anderson, Nabil Hanna, John Leonard,
Roland Newman and Mitchell Reff

10 (ii) TITLE OF INVENTION: THERAPEUTIC APPLICATION OF
CHIMERIC ANTIBODY TO HUMAN B
LYMPHOCYTE RESTRICTED
DIFFERENTIATION ANTIGEN FOR
TREATMENT OF B CELL LYMPHOMA

15 (iii) NUMBER OF SEQUENCES: 8

(iv) CORRESPONDING ADDRESS:

20 (A) ADDRESSEE: IDEC Pharmaceuticals Corporation
(B) STREET: 11099 N. Torrey Pines Road, #160
(C) CITY: La Jolla
(D) STATE: California
(E) COUNTRY: USA
25 (F) ZIP: 92037

(v) COMPUTER READABLE FORM:

30 (A) MEDIUM TYPE: Diskette, 3.5 inch, 1.44 Mb
(B) COMPUTER: Macintosh
(C) OPERATING SYSTEM: MS.DOS
(D) SOFTWARE: Microsoft Word 5.0

a (vi) CURRENT APPLICATION DATA:

35 (A) APPLICATION NUMBER:
(B) FILING DATE:
(C) CLASSIFICATION:

40 (viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: Burgoon, Richard P. Jr.
(B) REGISTRATION NUMBER: 34,787
(C) REFERENCE/DOCKET NUMBER:

45 (ix) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: (619) 458-0600
(B) TELEFAX: (619) 546-9274

(2) INFORMATION FOR SEQ. ID. NO₁: 1:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8540 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: ~~yes~~ no

(iv) ANTI-SENSE: no

(ix) SEQUENCE DESCRIPTION: SEQ. ID. NO₁: 1:

GACGTCGCGG CCGCTCTAGG CCTCCAAAAA AGCCTCCTCA CTACTTCTGG AATAGCTCAG 60
AGGCCGAGGC GGCCTCGGCC TCTGCATAAA TAAAAAAAT TAGTCAGCCA TGCATGGGGC 120
GGAGAATGGG CGGAAC TGGG CGGAGTTAGG GGC GGGATGG GCGGAGTTAG GGGCGGGACT 180
ATGGTTGCTG ACTAATTGAG ATGCATGCTT TGCATACTTC TGCCTGCTGG GGAGCCTGGG 240
GACTTTCCAC ACCTGGTTGC TGA CTAATTG AGATGCATGC TTTGCATACT TCTGCCTGCT 300
GGGAGCCTG GGGACTTTCC ACAC CTAAC TGACACACAT TCCACAGAAT TAATTCCCCT 360
AGTTATTAAT AGTAATCAAT TACGGGGTCA TTAGTTTATA GCCCATATAT GGAGTTCCGC 420
GTTACATAAC TTACGGTAAA TGGCCCGCCT GGCTGACCGC CCAACGACCC CCGCCCATTG 480
ACGTCAATAA TGACGTATGT TCCCATAGTA ACGCCAATAG GGACTTTCCA TTGACGTCAA 540
TGGGTGGACT ATTTACGGTA AACTGCCAC TTGGCAGTAC ATCAAGTGTA TCATATGCCA 600
AGTACGCCCC CTATTGACGT CAATGACGGT AAATGGCCCG CCTGGCATTA TGCCCAGTAC 660
ATGACCTTAT GGGACTTTCC TACTTGGCAG TACATCTACG TATTAGTCAT CGCTATTACC 720
ATGGTGATGC GGTTTTGGCA GTACATCAAT GGGCGTGGAT AGCGGTTTGA CTCACGGGGA 780
TTTCCAAGTC TCCACCCCAT TGACGTCAAT GGGAGTTTGT TTTGGCACCA AAATCAACGG 840
GACTTTCCAA AATGTCGTAA CAACTCCGCC CCATTGACGC AAATGGGCGG TAGGCGTGTA 900
CGGTGGGAGG TCTATATAAG CAGAGCTGGG TACGTGAACC GTCAGATCGC CTGGAGACGC 960
CATCACAGAT CTCTCACCAT GAGGGTCCCC GCTCAGCTCC TGGGGCTCCT GCTGCTCTGG 1020
CTCCCAGGTG CACGATGTGA TGGTACCAAG GTGGAAATCA AACGTACGGT GGCTGCACCA 1080
TCTGTCTTCA TCTTCCCGCC ATCTGATGAG CAGTTGAAAT CTGGAAC TGC CTCTGTTGTG 1140

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|----|-------------|-------------|-------------|-------------|-------------|-------------|------|
| | TGCCTGCTGA | ATAACTTCTA | TCCCAGAGAG | GCCAAAGTAC | AGTGGAAGGT | GGATAACGCC | 1200 |
| 5 | CTCCAATCGG | GTAAC TCCCA | GGAGAGTGTC | ACAGAGCAGG | ACAGCAAGGA | CAGCACCTAC | 1260 |
| | AGCCTCAGCA | GCACCCTGAC | GCTGAGCAAA | GCAGACTACG | AGAAACACAA | AGTCTACGCC | 1320 |
| | TGCGAAGTCA | CCCATCAGGG | CCTGAGCTCG | CCCCTCACAA | AGAGCTTCAA | CAGGGGAGAG | 1380 |
| 10 | TGTTGAATTC | AGATCCGTTA | ACGGTTACCA | ACTACCTAGA | CTGGATTTCGT | GACAACATGC | 1440 |
| | GGCCGTGATA | TCTACGTATG | ATCAGCCTCG | ACTGTGCCTT | CTAGTTGCCA | GCCATCTGTT | 1500 |
| 15 | GTTTGCCCCCT | CCCCCGTGCC | TTCCTTGACC | CTGGAAGGTG | CCACTCCCAC | TGTCCTTTCC | 1560 |
| | TAATAAAATG | AGGAAATTGC | ATCGCATTTGT | CTGAGTAGGT | GTCATTCTAT | TCTGGGGGGT | 1620 |
| | GGGGTGGGGC | AGGACAGCAA | GGGGGAGGAT | TGGGAAGACA | ATAGCAGGCA | TGCTGGGGAT | 1680 |
| 20 | GCGGTGGGCT | CTATGGAACC | AGCTGGGGCT | CGACAGCTAT | GCCAAGTACG | CCCCCTATTG | 1740 |
| | ACGTCAATGA | CGGTAAATGG | CCCGCCTGGC | ATTATGCCCA | GTACATGACC | TTATGGGACT | 1800 |
| 25 | TTCTACTTGT | GCAGTACATC | TACGTATTAG | TCATCGCTAT | TACCATGGTG | ATGCGGTTTT | 1860 |
| | GGCAGTACAT | CAATGGGCGT | GGATAGCGGT | TTGACTCACG | GGGATTTCCA | AGTCTCCACC | 1920 |
| | CCATTGACGT | CAATGGGAGT | TTGTTTTTGGC | ACCAAAATCA | ACGGGACTTT | CCAAAATGTC | 1980 |
| 30 | GTAACAACTC | CGCCCCATTG | ACGCAAATGG | GCGGTAGGCG | TGTACGGTGG | GAGGTCTATA | 2040 |
| | TAAGCAGAGC | TGGGTACGTC | CTCACATTCA | GTGATCAGCA | CTGAACACAG | ACCCGTCGAC | 2100 |
| 35 | ATGGGTTGGA | GCCTCATCTT | GCTCTTCCTT | GTCGCTGTTG | CTACGCGTGT | CGCTAGCACC | 2160 |
| | AAGGGCCCAT | CGGTCTTCCC | CCTGGCACCC | TCC'TCCAAGA | GCACCTCTGG | GGGCACAGCG | 2220 |
| | GCCCTGGGCT | GCCTGGTCAA | GGACTACTTC | CCCGAACCGG | TGACGGTGTC | GTGGAAC'TCA | 2280 |
| 40 | GGCGCCCTGA | CCAGCGGCGT | GCACACCTTC | CCGGCTGTCC | TACAGTCCTC | AGGACTCTAC | 2340 |
| | TCCCTCAGCA | GCGTGGTGAC | CGTGCCCTCC | AGCAGCTTGG | GCACCCAGAC | CTACATCTGC | 2400 |
| 45 | AACGTGAATC | ACAAGCCCAG | CAACACCAAG | GTGGACAAGA | AAGCAGAGCC | CAAATCTTGT | 2460 |
| | GACAAAAC'TC | ACACATGCCC | ACCGTGCCCA | GCACCTGAAC | TCCTGGGGGG | ACCGTCAGTC | 2520 |
| | TTCTCTTCC | CCCCAAAACC | CAAGGACACC | CTCATGATCT | CCCGGACCCC | TGAGGTCACA | 2580 |
| 50 | TGCGTGGTGG | TGGACGTGAG | CCACGAAGAC | CCTGAGGTCA | AGTTCAACTG | GTACGTGGAC | 2640 |
| | GGCGTGGAGG | TGCATAATGC | CAAGACAAAG | CCGCGGGAGG | AGCAGTACAA | CAGCACGTAC | 2700 |
| 55 | CGTGTGGTCA | GCGTCCTCAC | CGTCCTGCAC | CAGGACTGGC | TGAATGGCAA | GGAGTACAAG | 2760 |
| | TGCAAGGTCT | CCAACAAAGC | CCTCCCAGCC | CCCATCGAGA | AAACCATCTC | CAAAGCCAAA | 2820 |
| | GGGCAGCCCC | GAGAACCACA | GGTGTAACCC | CTGCCCCCAT | CCCGGGATGA | GCTGACCAAG | 2880 |

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|----|-------------|-------------|------------|-------------|-------------|------------|------|
| | AACCAGGTCA | GCCTGACCTG | CCTGGTCAAA | GGCTTCTATC | CCAGCGACAT | CGCCGTGGAG | 2940 |
| 5 | TGGGAGAGCA | ATGGGCAGCC | GGAGAACAAC | TACAAGACCA | CGCCTCCCGT | GCTGGACTCC | 3000 |
| | GACGGCTCCT | TCTTCCTCTA | CAGCAAGCTC | ACCGTGGACA | AGAGCAGGTG | GCAGCAGGGG | 3060 |
| | AACGTCTTCT | CATGCTCCGT | GATGCATGAG | GCTCTGCACA | ACCACTACAC | GCAGAAGAGC | 3120 |
| 10 | CTCTCCCTGT | CTCCGGGTAA | ATGAGGATCC | GTTAACGGTT | ACCAACTACC | TAGACTGGAT | 3180 |
| | TCGTGACAAC | ATGCGGCCGT | GATATCTACG | TATGATCAGC | CTCGACTGTG | CCTTCTAGTT | 3240 |
| 15 | GCCAGCCATC | TGTTGTTTGC | CCCTCCCCCG | TGCCTTCCCT | GACCCGTGGAA | GGTGCCACTC | 3300 |
| | CCACTGTCCT | TTCTTAATAA | AATGAGGAAA | TTGCATCGCA | TTGTCTGAGT | AGGTGTCATT | 3360 |
| | CTATTCTGGG | GGGTGGGGTG | GGGCAGGACA | GCAAGGGGGA | GGATTGGGAA | GACAATAGCA | 3420 |
| 20 | GGCATGCTGG | GGATGCGGTG | GGCTCTATGG | AACCAGCTGG | GGCTCGACAG | CGCTGGATCT | 3480 |
| | CCCGATCCCC | AGCTTTTGCTT | CTCAATTTCT | TATTTGCATA | ATGAGAAAAA | AAGGAAAATT | 3540 |
| 25 | AATTTTAACA | CCAATTCAGT | AGTTGATTGA | GCAATGCGT | TGCCAAAAAG | GATGCTTTAG | 3600 |
| | AGACAGTGTT | CTCTGCACAG | ATAAGGACAA | ACATTTATTCA | GAGGGAGTAC | CCAGAGCTGA | 3660 |
| | GACTCCTAAG | CCAGTGAGTG | GCACAGCATT | CTAGGCAGAA | ATATGCTTGT | CATCACCGAA | 3720 |
| 30 | GCCTGATTCC | GTAGAGCCAC | ACCTTGGTAA | GGGCCAATCT | GCTCACACAG | GATAGAGAGG | 3780 |
| | GCAGGAGCCA | GGGCAGAGCA | TATAAGGTGA | GGTAGGATCA | GTTGCTCCTC | ACATTTGCTT | 3840 |
| 35 | CTGACATAGT | TGTGTTGGGA | GCTTGATAG | CTTGACAGC | TCAGGGCTGC | GATTTGCGGC | 3900 |
| | CAAACTTGAC | GGCAATCCTA | GCGTGAAGGC | TGGTAGGATT | TTATCCCCGC | TGCCATCATG | 3960 |
| | GTTTCGACCAT | TGAACTGCAT | CGTCGCCGTG | TCCCAAATA | TGGGGATTGG | CAAGAACGGA | 4020 |
| 40 | GACCTACCCT | GGCTCCGCT | CAGGAACGAG | TTCAAGTACT | TCCAAAGAAT | GACCACAACC | 4080 |
| | TCTTCAGTGG | AAGGTAAACA | GAATCTGGTG | ATTATGGGTA | GGAAAACCTG | GTTCTCCATT | 4140 |
| 45 | CCTGAGAAGA | ATCGACCTTT | AAAGGACAGA | ATTAATATAG | TTCTCAGTAG | AGAACTCAAA | 4200 |
| | GAACCACCAC | GAGGAGCTCA | TTTTCTTGCC | AAAAGTTTGG | ATGATGCCTT | AAGACTTATT | 4260 |
| | GAACAACCGG | AATTGGCAAG | TAAAGTAGAC | ATGGTTTGGG | TAGTCGGAGG | CAGTTCTGTT | 4320 |
| 50 | TACCAGGAAG | CCATGAATCA | ACCAGGCCAC | CTTAGACTCT | TTGTGACAAG | GATCATGCAG | 4380 |
| | GAATTTGAAA | GTGACACGTT | TTTCCCAGAA | ATTGATTTGG | GGAAATATAA | ACTTCTCCCA | 4440 |
| 55 | GAATACCCAG | GCGTCCCTCT | TGAGGTCCAG | GAGGAAAAAG | GCATCAAGTA | TAAGTTTGAA | 4500 |
| | GTCTACGAGA | AGAAAGACTA | ACAGGAAGAT | GCTTTCAAGT | TCTCTGCTCC | CCTCCTAAAG | 4560 |
| | CTATGCATTT | TTATAAGACC | ATGGGACTTT | TGCTGGCTTT | AGATCAGCCT | CGACTGTGCC | 4620 |

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|----|------------|-------------|-------------|------------|-------------|-------------|------|
| | TTCTAGTTGC | CAGCCATCTG | TTGTTTGCCC | CTCCCCCGTG | CCTTCCTTGA | CCCTGGAAGG | 4680 |
| 5 | TGCCACTCCC | ACTGTCCTTT | CCTAATAAAA | TGAGGAAATT | GCATCGCATT | GTCTGAGTAG | 4740 |
| | GTGTCATTCT | ATTCTGGGGG | GTGGGGTGGG | GCAGGACAGC | AAGGGGGAGG | ATTGGGAAGA | 4800 |
| | CAATAGCAGG | CATGCTGGGG | ATGCGGTGGG | CTCTATGGAA | CCAGCTGGGG | CTCGAGCTAC | 4860 |
| 10 | TAGCTTTGCT | TCTCAATTTT | TTATTTGCAT | AATGAGAAAA | AAAGGAAAAT | TAATTTTAAC | 4920 |
| | ACCAATTCAG | TAGTTGATTG | AGCAAATGCG | TTGCCAAAAA | GGATGCTTTA | GAGACAGTGT | 4980 |
| 15 | TCTCTGCACA | GATAAGGACA | AACATTATTC | AGAGGGAGTA | CCCAGAGCTG | AGACTCCTAA | 5040 |
| | GCCAGTGAGT | GGCACAGCAT | TCTAGGGAGA | AATATGCTTG | TCATCACCGA | AGCCTGATTC | 5100 |
| | CGTAGAGCCA | CACCTTG GTA | AGGGCCAAATC | TGCTCACACA | GGATAGAGAG | GGCAGGAGCC | 5160 |
| 20 | AGGGCAGAGC | ATATAAGGTG | AGGTAGGATC | AGTTGCTCCT | CACATTTGCT | TCTGACATAG | 5220 |
| | TTGTGTTGGG | AGCTTGGATC | GATCCTCTAT | GGTTGAACAA | GATGGATTGC | ACGCAGGTTC | 5280 |
| 25 | TCCGGCCGCT | TGGGTGGAGA | GGCTATTTCG | CTATGACTGG | GCACAACAGA | CAATCGGCTG | 5340 |
| | CTCTGATGCC | GCCGTGTTCC | GGCTGTCAGC | GCAGGGGCGC | CCGGTTCTTT | TTGTCAAGAC | 5400 |
| | CGACCTGTCC | GGTGCCCTGA | ATGAAC TGCA | GGACGAGGCA | GCGCGGCTAT | CGTGGCTGGC | 5460 |
| 30 | CACGACGGGC | GTTCCCTGCG | CAGCTGTGCT | CGACGTTGTC | ACTGAAGCGG | GAAGGGACTG | 5520 |
| | GCTGCTATTG | GGCGAAGTGC | CGGGGCAGGA | TCTCCTGTCA | TCTCACCTTG | CTCCTGCCGA | 5580 |
| 35 | GAAAGTATCC | ATCATGGCTG | ATGCAATGCG | GCGGCTGCAT | ACGCTTGATC | CGGCTACCTG | 5640 |
| | CCCATTGAC | CACCAAGCGA | AACATCGCAT | CGAGCGAGCA | CGTACTCGGA | TGGAAGCCGG | 5700 |
| | TCTTGTCGAT | CAGGATGATC | TGGACGAAGA | GCATCAGGGG | CTCGCGCCAG | CCGAAC TGTT | 5760 |
| 40 | CGCCAGGCTC | AAGGCGCGCA | TGCCCCGACG | CGAGGATCTC | GTCGTGACCC | ATGGCGATGC | 5820 |
| | CTGCTTGCCG | AATATCATGG | TGGAAAATGG | CCGCTTTTCT | GGATTTCATG | ACTGTGGCCG | 5880 |
| 45 | GCTGGGTGTG | GCGGACCGCT | ATCAGGACAT | AGCGTTGGCT | ACCCGTGATA | TTGCTGAAGA | 5940 |
| | GCTTGCGCGC | GAATGGGCTG | ACCGCTTCCT | CGTGCTTTAC | GGTATCGCCG | CTCCCGATTC | 6000 |
| | GCAGCGCATC | GCCTTCTATC | GCCTTCTTGA | CGAGTTCTTC | TGAGCGGGAC | TCTGGGGTTC | 6060 |
| 50 | GAAATGACCG | ACCAAGCGAC | GCCCAACCTG | CCATCACGAG | ATTTTCGATTC | CACCGCCGCC | 6120 |
| | TTCTATGAAA | GGTTGGGCTT | CGGAATCGTT | TTCCGGGACG | CCGGCTGGAT | GATCCTCCAG | 6180 |
| 55 | CGCGGGGATC | TCATGCTGGA | GTTCTTCGCC | CACCCCAACT | TGTTTATTGC | AGCTTATAAT | 6240 |
| | GGTTACAAAT | AAAGCAATAG | CATCACAAAT | TTCACAAATA | AAGCATTTTT | TTCACTGCAT | 6300 |
| | TCTAGTTGTG | GTTTGTCCAA | ACTCATCAAT | CTATCTTATC | ATGTCTGGAT | CGCGGCCGCG | 6360 |

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|----|-------------|------------|------------|-------------|------------|------------|------|
| | ATCCCGTCGA | GAGCTTGGCG | TAATCATGGT | CATAGCTGTT | TCCTGTGTGA | AATTGTTATC | 6420 |
| 5 | CGCTCACAAT | TCCACACAAC | ATACGAGCCG | GAAGCATAAA | GTGTAAAGCC | TGGGGTGCCT | 6480 |
| | AATGAGTGAG | CTAACTCACA | TTAATTGCGT | TGCGCTCACT | GCCCGCTTTC | CAGTCGGGAA | 6540 |
| | ACCTGTCTGT | CCAGCTGCAT | TAATGAATCG | GCCAACGCGC | GGGGAGAGGC | GGTTTGCGTA | 6600 |
| 10 | TTGGGCGCTC | TTCCGCTTCC | TCGCTCCTG | ACTCGCTGCG | CTCGGTCTGT | CGGCTGCGGC | 6660 |
| | GAGCGGTATC | AGCTCACTCA | AAGGCGGTAA | TACGGTTATC | CACAGAATCA | GGGGATAACG | 6720 |
| 15 | CAGGAAAGAA | CATGTGAGCA | AAAGGCCAGC | AAAAGGCCAG | GAACCGTAAA | AAGGCCGCGT | 6780 |
| | TGCTGGCGTT | TTTCCATAGG | CTCCGCCCCC | CTGACGAGCA | TCACAAAAAT | CGACGCTCAA | 6840 |
| | GTCAGAGGTG | GCGAAACCCG | ACAGGACTAT | AAAGATACCA | GGCGTTTCCC | CCTGGAAGCT | 6900 |
| 20 | CCCTCGTGCG | CTCTCCTGTT | CCGACCCTGC | CGCTTACCGG | ATACCTGTCC | GCCTTTCTCC | 6960 |
| | CTTCGGGAAG | CGTGGCGCTT | TCTCAATGCT | CACGCTGTAG | GTATCTCAGT | TCGGTGTAGG | 7020 |
| 25 | TCGTTTCGCTC | CAAGCTGGGC | TGTGTGCACG | AACCCCCCGT | TCAGCCCGAC | CGCTGCGCCT | 7080 |
| | TATCCGGTAA | CTATCGTCTT | GAGTCCAACC | CGGTAAGACA | CGACTTATCG | CCACTGGCAG | 7140 |
| | CAGCCACTGG | TAACAGGATT | AGCAGAGCGA | GGTATGTAGG | CGGTGCTACA | GAGTTCCTGA | 7200 |
| 30 | AGTGGTGGCC | TAACACGGC | TACACTAGAA | GGACAGTATT | TGGTATCTGC | GCTCTGCTGA | 7260 |
| | AGCCAGTTAC | CTTCGGAAAA | AGAGTTGGTA | GCTCTTGATC | CGGCAAACAA | ACCACCGCTG | 7320 |
| 35 | GTAGCGGTGG | TTTTTTTGT | TGCAAGCAGC | AGATTACGCG | CAGAAAAAAA | GGATCTCAAG | 7380 |
| | AAGATCCTTT | GATCTTTTCT | ACGGGGTCTG | ACGCTCAGTG | GAACGAAAAC | TCACGTTAAG | 7440 |
| | GGATTTTGGT | CATGAGATTA | TCAAAAAGGA | TCTTCACCTA | GATCCTTTTA | AATTAAAAAT | 7500 |
| 40 | GAAGTTTAA | ATCAATCTAA | AGTATATATG | AGTAACTTG | GTCTGACAGT | TACCAATGCT | 7560 |
| | TAATCAGTGA | GGCACCTATC | TCAGCGATCT | GTCTATTTTCG | TTCATCCATA | GTTGCCTGAC | 7620 |
| 45 | TCCCCGTCGT | GTAGATAACT | ACGATACGGG | AGGGCTTACC | ATCTGGCCCC | AGTGCTGCAA | 7680 |
| | TGATACCGCG | AGACCCACGC | TCACCGGCTC | CAGATTTATC | AGCAATAAAG | CAGCCAGCCG | 7740 |
| | GAAGGGCCGA | GCGCAGAAGT | GGTCCTGCAA | CTTTATCCGC | CTCCATCCAG | TCATTAAATT | 7800 |
| 50 | GTTGCCGGGA | AGCTAGAGTA | AGTAGTTCGC | CAGTTAATAG | TTTGCGCAAC | GTTGTTGCCA | 7860 |
| | TTGCTACAGG | CATCGTGGTG | TCACGCTCGT | CGTTTGGTAT | GGCTTCATTC | AGCTCCGGTT | 7920 |
| 55 | CCCAACGATC | AAGGCGAGTT | ACATGATCCC | CCATGTTGTG | CAAAAAAGCG | GTTAGCTCCT | 7980 |
| | TCGGTCCTCC | GATCGTTGTC | AGAAGTAAGT | TGGCCGCAGT | GTTATCACTC | ATGGTTATGG | 8040 |
| | CAGCACTGCA | TAATTCCTTT | ACTGTCATGC | CATCCGTAAG | ATGCTTTTCT | GTGACTGGTG | 8100 |

AGTACTCAAC CAAGTCATTC TGAGAATAGT GTATGCGGCG ACCGAGTTGC TCTTGCCCGG 8160
 CGTCAATACG GGATAATACC GCGCCACATA GCAGAACTTT AAAAGTGCTC ATCATTGGAA 8220
 AACGTTCTTC GGGGCGAAAA CTCTCAAGGA TCTTACCGCT GTTGAGATCC AGTTCGATGT 8280
 AACCCACTCG TGCACCCAAC TGATCTTCAG CATCTTTTAC TTTACCAGC GTTTCTGGGT 8340
 GAGCAAAAAC AGGAAGGCAA AATGCCGCAA AAAAGGGAAT AAGGGCGACA CGGAAATGTT 8400
 GAATACTCAT ACTCTTCTTT TTTCAATATT ATTGAAGCAT TTATCAGGGT TATTGTCTCA 8460
 TGAGCGGATA CATATTTGAA TGTATTTAGA AAAATAAACA AATAGGGGTT CCGCGCACAT 8520
 TTCCCCGAAA AGTGCCACCT 8540

(3) INFORMATION FOR SEQ. ID. NO₁: 2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9209 bases
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: ~~yes~~ no

(iv) ANTI-SENSE: no

(ix) SEQUENCE DESCRIPTION: SEQ. ID. NO₁: 2:

GACGTCGCGG CCGCTCTAGG CCTCCAAAAA AGCCTCCTCA CTACTTCTGG AATAGCTCAG 60
 AGGCCGAGGC GGCCTCGGCC TCTGCATAAA TAAAAAAAAT TAGTCAGCCA TGCATGGGGC 120
 GGAGAATGGG CGGAAC TGGG CGGAGTTAGG GGCGGGATGG GCGGAGTTAG GGGCGGGACT 180
 ATGGTTGCTG ACTAATTGAG ATGCATGCTT TGCATACTTC TGCTTGCTGG GGAGCCTGGG 240
 GACTTTCCAC ACCTGGTTGC TGA CTAATTG AGATGCATGC TTTGCATACT TCTGCCTGCT 300
 GGGGAGCCTG GGGACTTTCC ACACCTAAC TGACACACAT TCCACAGAAT TAATTCCCCT 360
 AGTTATTAAT AGTAATCAAT TACGGGGTCA TTAGTTTCATA GCCCATATAT GGAGTTCCGC 420
 GTTACATAAC TTACGGTAAA TGGCCCGCCT GGCTGACCGC CCAACGACCC CCGCCCATTG 480
 ACGTCAATAA TGACGTATGT TCCCATAGTA ACGCCAATAG GGACTTTCCA TTGACGTCAA 540

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|----|-------------|-------------|-------------|-------------|-------------|-------------|------|
| | TGGGTGGACT | ATTTACGGTA | AACTGCCCCAC | TTGGCAGTAC | ATCAAGTGTA | TCATATGCCA | 600 |
| | AGTACGCCCC | CTATTGACGT | CAATGACGGT | AAATGGCCCCG | CCTGGCATT | TGCCCAGTAC | 660 |
| 5 | ATGACCTTAT | GGGACTTTCC | TACTTGGCAG | TACATCTACG | TATTAGTCAT | CGCTATTACC | 720 |
| | ATGGTGATGC | GGTTTTGGCA | GTACATCAAT | GGGCGTGGAT | AGCGGTTTGA | CTCACGGGGA | 780 |
| | TTTCCAAGTC | TCCACCCCAT | TGACGTCAAT | GGGAGTTTGT | TTTGGCACCA | AAATCAACGG | 840 |
| 10 | GACTTTCCAA | AATGTCGTAA | CAACTCCGCC | CCATTGACGC | AAATGGGCGG | TAGGCGTGTA | 900 |
| | CGGTGGGAGG | TCTATATAAG | CAGAGCTGGG | TACGTGAACC | GTCAGATCGC | CTGGAGACGC | 960 |
| 15 | CATCACAGAT | CTCTCACTAT | GGATTTTCAG | GTGCAGATTA | TCAGCTTCCT | GCTAATCAGT | 1020 |
| | GCTTCAGTCA | TAATGTCCAG | AGGACAAATT | GTTCTCTCCC | AGTCTCCAGC | AATCCTGTCT | 1080 |
| | GCATCTCCAG | GGGAGAAGGT | CACAATGACT | TGCAGGGCCA | GCTCAAGTGT | AAGTTACATC | 1140 |
| 20 | CACTGGTTCC | AGCAGAAGCC | AGGATCCTCC | CCCAAACCCCT | GGATTTATGC | CACATCCAAC | 1200 |
| | CTGGCTTCTG | GAGTCCCTGT | TCGCTTCAGT | GGCAGTGGGT | CTGGGACTTC | TTACTCTCTC | 1260 |
| 25 | ACAATCAGCA | GAGTGGAGGC | TGAAGATGCT | GCCACTTATT | ACTGCCAGCA | GTGGACTAGT | 1320 |
| | AACCCACCCA | CGTTCGGAGG | GGGGACCAAG | CTGGAAATCA | AACGTACGGT | GGCTGCACCA | 1380 |
| | TCTGTCTTCA | TCTTCCCGCC | ATCTGATGAG | CAGTTGAAAT | CTGGAAGTGC | CTCTGTTGTG | 1440 |
| 30 | TGCCTGCTGA | ATAACTTCTA | TCCCAGAGAG | GCCAAAGTAC | AGTGGAAGGT | GGATAACGCC | 1500 |
| | CTCCAATCGG | GTAAC'TCCCA | GGAGAGTGTC | ACAGAGCAGG | ACAGCAAGGA | CAGCACCTAC | 1560 |
| 35 | AGCCTCAGCA | GCACCCTGAC | GCTGAGCAAA | GCAGACTACG | AGAAACACAA | AGTCTACGCC | 1620 |
| | TGCGAAGTCA | CCCATCAGGG | CCTGAGCTCG | CCCGTCACAA | AGAGCTTCAA | CAGGGGAGAG | 1680 |
| | TGTTGAATTC | AGATCCGTTA | ACGGTTACCA | ACTACCTAGA | CTGGATTTCGT | GACAACATGC | 1740 |
| 40 | GGCCGTGATA | TCTACGTATG | ATCAGCCTCG | ACTGTGCCTT | CTAGTTGCCA | GCCATCTGTT | 1800 |
| | GTTTGCCCCCT | CCCCCGTGCC | TTCCTTGACC | CTGGAAGGTG | CCACTCCCAC | TGTCCTTTTCC | 1860 |
| 45 | TAATAAAATG | AGGAAATTGC | ATCGCATTGT | CTGAGTAGGT | GTCATTCTAT | TCTGGGGGGT | 1920 |
| | GGGGTGGGGC | AGGACAGCAA | GGGGGAGGAT | TGGGAAGACA | ATAGCAGGCA | TGCTGGGGAT | 1980 |
| | GCGGTGGGCT | CTATGGAACC | AGCTGGGGCT | CGACAGCTAT | GCCAAGTACG | CCCCCTATTG | 2040 |
| 50 | ACGTCAATGA | CGGTAAATGG | CCCGCCTGGC | ATTATGCCCA | GTACATGACC | TTATGGGACT | 2100 |
| | TTCTACTTTG | GCAGTACATC | TACGTATTAG | TCATCGCTAT | TACCATGGTG | ATGCGGTTTT | 2160 |
| 55 | GGCAGTACAT | CAATGGGCGT | GGATAGCGGT | TTGACTCACG | GGGATTTCCA | AGTCTCCACC | 2220 |
| | CCATTGACGT | CAATGGGAGT | TTGTTTTGGC | ACCAAATCA | ACGGGACTTT | CCAAAATGTC | 2280 |

| | | | | | | | | | | | | |
|----|-----------|------|-----------|-----|------------|-----|-----------|----------|------------|-----|-------------|------|
| | GTAACAAC | TC | CGCCCCAT | TG | ACGCAAAT | TGG | GCGGTAGG | CG | TGTACGGT | TGG | GAGGTCTATA | 2340 |
| | TAAGCAGAG | C | TGGGTACG | TC | CTCACATT | CA | GTGATCAG | CA | CTGAACAC | AG | ACCCGTCGAC | 2400 |
| 5 | ATGGGTTG | GA | GCCTCATC | TT | GCTCTTCCT | T | GTCGCTGT | TG | CTACGCGT | GT | CCTGTCCCAG | 2460 |
| | GTACAAC | TGC | AGCAGCCT | TGG | GGCTGAGC | TG | GTGAAGCCT | TG | GGGCCTCAG | T | GAAGATGTCC | 2520 |
| 10 | TGCAAGGCT | TT | CTGGCTAC | AC | ATTTACCAG | T | TACAATAT | TGC | ACTGGGTAAA | | ACAGACACCT | 2580 |
| | GGTCGGGG | C | TGGAATGG | AT | TGGAGCTAT | T | TATCCCGGA | A | ATGGTGATA | C | TTCTTACAAT | 2640 |
| | CAGAAGTT | CA | AAGGCAAG | GC | CACATTGAC | T | GCAGACAA | AT | CCTCCAGCA | C | AGCCTACATG | 2700 |
| 15 | CAGCTCAG | CA | GCCTGACAT | C | TGAGGACT | CT | GCGGTCTAT | T | ACTGTGCA | AG | ATCGACTTAC | 2760 |
| | TACGGCGGT | G | ACTGGTACT | TT | CAATGTCT | TGG | GGCGCAGG | GA | CCACGGTC | CAC | CGTCTCTGCA | 2820 |
| 20 | GCTAGCAC | CA | AGGGCCCAT | C | GGTCTTCCC | C | CTGGCACC | CT | CCTCCAAG | AG | CACCTCTGGG | 2880 |
| | GGCACAGCG | G | CCCTGGGCT | G | CCTGGTCA | AG | GA | CTACTTCC | CCGAACCG | GT | GACGGTGTCTG | 2940 |
| | TGGAAC | TCAG | GCGCCCTG | AC | CAGCGGCG | TG | CACACCTT | CC | CGGCTGTCT | C | ACAGTCTCTCA | 3000 |
| 25 | GGACTCTAC | T | CCCTCAGCA | G | CGTGGTGAC | C | GTGCCCTCC | A | GCAGCTTGG | G | CACCCAGACC | 3060 |
| | TACATCTG | CA | ACGTGAAT | CA | CAAGCCCAG | C | AACACCAAG | G | TGGACAAG | AA | AGCAGAGCCC | 3120 |
| 30 | AAATCTTGT | G | ACAAAAC | TCA | CACATGCC | CA | CCGTGCCCA | G | CACCTGAA | CT | CCTGGGGGGA | 3180 |
| | CCGTCA | GTCT | TCCTCTTCC | C | CCCAAACCC | A | AAGGACACC | C | TCATGATCT | C | CCGGACCCCT | 3240 |
| | GAGGTCAC | AT | GCGTGGTGG | T | GGACGTGAG | C | CACGAAGAC | C | CTGAGGTCA | A | GTTCAACTGG | 3300 |
| 35 | TACGTGGAC | G | GCGTGGAG | GT | GCATAATG | CC | AAGACAAAG | C | GCGGGAGGA | | GCAGTACAAC | 3360 |
| | AGCACGTAC | C | GTGTGGTC | AG | CGTCCCTAC | C | GTCCCTGC | ACC | AGGACTGG | CT | GAATGGCAAG | 3420 |
| 40 | GAGTACAAG | T | GCAAGGTCT | C | CAACAAAG | CC | CTCCCAGCC | C | CCATCGAGA | A | AACCATCTCC | 3480 |
| | AAAGCCAA | AAG | GGCAGCCCC | G | AGAACCAC | AG | GTGTACACC | C | TGCCCCCAT | C | CCGGGATGAG | 3540 |
| | CTGACCAAG | A | ACCAGGTC | AG | CCTGACCCT | G | CTGGTCAA | AG | GCTTCTAT | CC | CAGCGACATC | 3600 |
| 45 | GCCGTGGAG | T | GGGAGAGCA | A | TGGGCAGCC | G | GAGAACAAC | T | ACAAGACC | CAC | GCCTCCCGTG | 3660 |
| | CTGGACTCC | G | ACGGCTCCT | T | CTTCTCTAC | | AGCAAGCT | CA | CCGTGGACA | AA | GAGCAGGTGG | 3720 |
| 50 | CAGCAGGGG | A | ACGTCTTCT | C | ATGCTCCGT | G | ATGCATGAG | G | CTCTGCACA | A | CCACTACACG | 3780 |
| | CAGAAGAG | C | TCTCCCTGT | C | TCCGGGTAAA | | TGAGGATCC | G | TTAACGGTT | A | CCAACTACCT | 3840 |
| | AGACTGGAT | T | CGTGACAAC | A | TGCGGCCGT | G | ATATCTAC | GT | ATGATCAG | CC | TCGACTGTGC | 3900 |
| 55 | CTTCTAGTT | G | CCAGCCATC | T | GTTGTTTGG | C | CCTCCCCCG | T | GCCTTCCTT | G | ACCCTGGAAG | 3960 |
| | GTGCCACT | C | CACTGTCT | T | TCCTAATA | AAA | ATGAGGAA | AT | TGCATCGCA | T | TGTCTGAGTA | 4020 |

| | | | | | | | | | | | | |
|----|---------|-------|---------|-------|----------|--------|---------|--------|----------|--------|------------|------|
| | GGTGT | CATTC | TATTC | TGGGG | GGTGGGG | TGG | GGCAGG | ACAG | CAAGGGGG | GAG | GATTGGGAAG | 4080 |
| | ACAATAG | CAG | GCATGCT | TGGG | GATGCGGT | TGG | GCTCTAT | TGGA | ACCAGCT | TGGG | GCTCGACAGC | 4140 |
| 5 | GCTGGAT | CTC | CCGAT | CCCCA | GCTTTG | CTTC | TCAATTT | CTT | ATTTGC | CATAA | TGAGAAAAAA | 4200 |
| | AGGAAA | ATTA | ATTTT | AACAC | CAATTC | CAGTA | GTTGAT | TGAG | CAAATG | CGTT | GCCAAAAAGG | 4260 |
| 10 | ATGCTTT | TAGA | GACAGT | GTTC | TCTGCAC | AGTA | TAAGGAC | AAAA | CATTAT | TCAG | AGGGAGTACC | 4320 |
| | CAGAGCT | TGAG | ACTCT | TAAGC | CAGTGAG | TGG | CACAGCA | ATTC | TAGGG | GAGAAA | TATGCTTGTC | 4380 |
| | ATCACCG | AAG | CCTGAT | TCCG | TAGAGCC | CACA | CCTTG | GTAAG | GGCCA | ATCTG | CTCACACAGG | 4440 |
| 15 | ATAGAG | AGGG | CAGGAG | CCAG | GGCAGAG | CAT | ATAAGG | TGAG | GTAGGAT | CAG | TTGCTCCTCA | 4500 |
| | CATTTG | CTTC | TGACAT | AGTT | GTGTTGG | GAG | CTTGGAT | AGC | TTGGAC | AGCT | CAGGGCTGCG | 4560 |
| 20 | ATTTGCG | CGCC | AAACT | TGACG | GCAATC | CTAG | CGTGA | AAGGCT | GGTAGG | ATTT | TATCCCCGCT | 4620 |
| | GCCATCA | TGG | TTCGAC | CATT | GAAC | TGCATC | GTCGCC | GTGT | CCCAA | AATAT | GGGGATTGGC | 4680 |
| | AAGAAC | GGAG | ACCTAC | CCCTG | GCCTC | CGCTC | AGGAAC | GAGT | TCAAGT | ACTT | CCAAAGAATG | 4740 |
| 25 | ACCACA | AACCT | CTTCAG | TGGA | AGGTAA | AACAG | AATCTG | GTTGA | TTATGG | GTTAG | GAAAACCTGG | 4800 |
| | TTCTCC | ATTC | CTGAGA | AAGAA | TCGAC | CTTTA | AAGGAC | AGAA | TTAAT | ATAGT | TCTCAGTAGA | 4860 |
| 30 | GAACTC | AAAG | AACCACC | ACG | AGGAGC | TCAT | TTTCT | TGCCA | AAAGT | TTTGA | TGATGCCTTA | 4920 |
| | AGACTT | ATTTG | AACAACC | GGGA | ATTGG | CAAGT | AAAGT | AGACA | TGGTT | TGGAT | AGTCGGAGGC | 4980 |
| | AGTTCT | GTTT | ACCAGG | AAGC | CATGA | ATCAA | CCAGG | CCACC | TTAGAC | TCTT | TGTGACAAGG | 5040 |
| 35 | ATCATG | CAGG | AATTTG | AAAG | TGACAC | GTTT | TTCCC | AGAAA | TTGAT | TTGGG | GAAATATAAA | 5100 |
| | CTTCTC | CCCAG | AATACC | CAGG | CGTC | CTCTCT | GAGGT | CACAGG | AGGAAA | AAGG | CATCAAGTAT | 5160 |
| 40 | AAGTTT | GAAAG | TCTACG | AGAA | GAAAGAC | TAA | CAGGA | AGATG | CTTTCA | AGTT | CTCTGCTCCC | 5220 |
| | CTCCTA | AAGC | TATGCAT | TTTT | TATAAG | ACCA | TGGGAC | TTTT | GCTGG | CTTTA | GATCAGCCTC | 5280 |
| | GACTGT | GCCT | TCTAGT | TGCC | AGCCAT | CTGT | TGTTT | TGCCCC | TCCCC | CGTGC | CTTCCTTGAC | 5340 |
| 45 | CCTGGA | AAGGT | GCCACT | CCCCA | CTGTC | CTTTC | CTAATA | AAAAAT | GAGGA | AATTG | CATCGCATTG | 5400 |
| | TCTGAG | TAGG | TGTCAT | TCTA | TTCTG | GGGGG | TGGGG | TGGGG | CAGGAC | AGCA | AGGGGGAGGA | 5460 |
| 50 | TTGGGA | AAGAC | AATAGC | AGGC | ATGCT | GGGGA | TGCGG | TGGGC | TCTAT | GGAAC | CAGCTGGGGC | 5520 |
| | TCGAGC | TACT | AGCTTT | TGCTT | CTCAAT | TTTCT | TATTTG | CATA | ATGAG | AAAAA | AAGGAAAATT | 5580 |
| | AATTTT | TAACA | CCAATTC | CAGT | AGTTG | ATTGA | GCAAAT | GCGT | TGCCA | AAAAAG | GATGCTTTAG | 5640 |
| 55 | AGACAG | TGTT | CTCTGC | ACAG | ATAAGG | ACAA | ACATTAT | TCA | GAGGG | GAGTAC | CCAGAGCTGA | 5700 |
| | GACTCC | TAAG | CCAGT | GAGTG | GCACAG | CATT | CTAGGG | GAGAA | ATATG | CTTGT | CATCACCGAA | 5760 |

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|----|-------------|-------------|------------|------------|------------|------------|------|
| | GCCTGATTCC | GTAGAGCCAC | ACCTTGGTAA | GGGCCAATCT | GCTCACACAG | GATAGAGAGG | 5820 |
| | GCAGGAGCCA | GGGCAGAGCA | TATAAGGTGA | GGTAGGATCA | GTTGCTCCTC | ACATTTGCTT | 5880 |
| 5 | CTGACATAGT | TGTGTTGGGA | GCTTGGATCG | ATCCTCTATG | GTTGAACAAG | ATGGATTGCA | 5940 |
| | CGCAGGTTCT | CCGGCCGCTT | GGGTGGAGAG | GCTATTCCGC | TATGACTGGG | CACAACAGAC | 6000 |
| 10 | AATCGGCTGC | TCTGATGCCG | CCGTGTTCCG | GCTGTCAGCG | CAGGGGCGCC | CGGTTCTTTT | 6060 |
| | TGTCAAGACC | GACCTGTCCG | GTGCCCTGAA | TGAACTGCAG | GACGAGGCAG | CGCGGCTATC | 6120 |
| | GTGGCTGGCC | ACGACGGGCG | TTCTTTCGCG | AGCTGTGCTC | GACGTTGTCA | CTGAAGCGGG | 6180 |
| 15 | AAGGGACTGG | CTGCTATTGG | GCGAAGTGCC | GGGGCAGGAT | CTCCTGTCAT | CTCACCTTGC | 6240 |
| | TCCTGCCGAG | AAAGTATCCA | TCATGGCTGA | TGCAATGCGG | CGGCTGCATA | CGCTTGATCC | 6300 |
| | GGCTACCTGC | CCATTTCGACC | ACCAAGCGAA | ACATCGCATC | GAGCGAGCAC | GTACTCGGAT | 6360 |
| 20 | GGAAGCCGGT | CTTGTCGATC | AGSATGATCT | GGACGAAGAG | CATCAGGGGC | TCGCGCCAGC | 6420 |
| | CGAAGTGTTC | GCCAGGCTCA | AGGCGCGCAT | GCCCGACGGC | GAGGATCTCG | TCGTGACCCA | 6480 |
| 25 | TGGCGATGCC | TGCTTGCCGA | ATATCATGGT | GGAAAATGGC | CGCTTTTCTG | GATTCATCGA | 6540 |
| | CTGTGGCCGG | CTGGGTGTGG | CGGACCGCTA | TCAGGACATA | GCGTTGGCTA | CCCGTGATAT | 6600 |
| | TGCTGAAGAG | CTTGCGGCG | AATGGGCTGA | CCGCTTCCTC | GTGCTTTACG | GTATCGCCGC | 6660 |
| 30 | TCCCGATTCT | CAGCGCATCG | CCTTCTATCG | CTTCTTGAC | GAGTTCTTCT | GAGCGGGACT | 6720 |
| | CTGGGGTTCT | AAATGACCGA | CCAAGCGACG | CCCAACCTGC | CATCACGAGA | TTTCGATTCC | 6780 |
| 35 | ACCGCCGCCT | TCTATGAAAG | GTTGGGCTTC | GGAATCGTTT | TCCGGGACGC | CGGCTGGATG | 6840 |
| | ATCCTCCAGC | GCGGGGATCT | CATGCTGGAG | TTCTTCGCCC | ACCCCAACTT | GTTTATTGCA | 6900 |
| | GCTTATAATG | GTTACAAATA | AAGCAATAGC | ATCACAAATT | TCACAAATAA | AGCATTTTTT | 6960 |
| 40 | TCACTGCATT | CTAGTTGTGG | TTTGTCCAAA | CTCATCAATC | TATCTTATCA | TGTCTGGATC | 7020 |
| | GCGGCCGCGA | TCCCGTCGAG | AGCTTGCGGT | AATCATGGTC | ATAGCTGTTT | CCTGTGTGAA | 7080 |
| 45 | ATTGTTATCC | GCTCACAATT | CCACACAACA | TACGAGCCGG | AAGCATAAAG | TGTAAAGCCT | 7140 |
| | GGGGTGCCCTA | ATGAGTGAGC | TAATTCACAT | TAATTGCGTT | GCGCTCACTG | CCCCTTTTCC | 7200 |
| | AGTCGGGAAA | CCTGTCGTGC | CAGCTGCATT | AATGAATCGG | CCAACGCGCG | GGGAGAGGCG | 7260 |
| 50 | GTTTGCCTAT | TGGGCGCTCT | TCCGCTTCCT | CGCTCACTGA | CTCGCTGCGC | TCGGTCGTTC | 7320 |
| | GGCTGCGGCG | AGCGGTATCA | GCTCACTCAA | AGGCGGTAAT | ACGGTTATCC | ACAGAATCAG | 7380 |
| 55 | GGGATAACGC | AGGAAAGAAC | ATGTGAGCAA | AAGGCCAGCA | AAAGGCCAGG | AACCGTAAAA | 7440 |
| | AGGCCGCGTT | GCTGGCGTTT | TTCCATAGGC | TCCGCCCCCC | TGACGAGCAT | CACAAAAATC | 7500 |

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|----|------------|------------|------------|------------|-------------|-------------|------|
| | GACGCTCAAG | TCAGAGGTGG | CGAAACCCGA | CAGGACTATA | AAGATACCAG | GCGTTTCCCC | 7560 |
| | CTGGAAGCTC | CCTCGTGCGC | TCTCCTGTTC | CGACCCTGCC | GCTTACCGGA | TACCTGTCCG | 7620 |
| 5 | CCTTTCTCCC | TTCGGGAAGC | GTGGCGCTTT | CTCAATGCTC | ACGCTGTAGG | TATCTCAGTT | 7680 |
| | CGGTGTAGGT | CGTTCGCTCC | AAGCTGGGCT | GTGTGCACGA | ACCCCCCGTT | CAGCCCGACC | 7740 |
| 10 | GCTGCGCCTT | ATCCGGTAAC | TATCGTCTTG | AGTCCAACCC | GGTAAGACAC | GACTTATCGC | 7800 |
| | CACTGGCAGC | AGCCACTGGT | AACAGGATTA | GCAGAGCGAG | GTATGTAGGC | GGTGCTACAG | 7860 |
| | AGTTCTTGAA | GTGGTGGCCT | AACTACGGCT | ACACTAGAAG | GACAGTATTT | GGTATCTGCG | 7920 |
| 15 | CTCTGCTGAA | GCCAGTTACC | TTCGGAAAAA | GAGTTGGTAG | CTCTTGATCC | GGCAAACAAA | 7980 |
| | CCACCGCTGG | TAGCGGTGGT | TTTTTTGTTT | GCAAGCAGCA | GATTACGCGC | AGAAAAAAG | 8040 |
| 20 | GATCTCAAGA | AGATCCTTTG | ATCTTTTCTA | CGGGGTCTGA | CGCTCAGTGG | AACGAAAAC | 8100 |
| | CACGTTAAGG | GATTTTGGTC | ATGAGATTAT | CAAAAAGGAT | CTTCACCTAG | ATCCTTTTAA | 8160 |
| | ATTAAAAATG | AAGTTTAA | TCAATCTAAA | GTATATATGA | GTAAACTTGG | TC TGACAGTT | 8220 |
| 25 | ACCAATGCTT | AATCAGTGAG | GCACCTATCT | CAGCGATCTG | TCTATTTTCGT | TCATCCATAG | 8280 |
| | TTGCCTGACT | CCCCGTCGTG | TAGATAACTA | CGATACGGGA | GGGCTTACCA | TCTGGCCCCA | 8340 |
| 30 | GTGCTGCAAT | GATACCGCGA | GACCCACGCT | CACCGGCTCC | AGATTTATCA | GCAATAAACC | 8400 |
| | AGCCAGCCGG | AAGGGCCGAG | CGCAGAAGTG | GTCTTGCAAC | TTTATCCGCC | TCCATCCAGT | 8460 |
| | CTATTAATTG | TTGCCGGGAA | GCTAGAGTAA | GTAGTTCGCC | AGTTAATAGT | TTGCGCAACG | 8520 |
| 35 | TTGTTGCCAT | TGCTACAGGC | ATCGTGGTGT | CAGCTCGTC | GTTTGGTATG | GCTTCATTCA | 8580 |
| | GCTCCGGTTC | CCAACGATCA | AGGCGAGTTA | CATGATCCCC | CATGTTGTGC | AAAAAAGCGG | 8640 |
| 40 | TTAGCTCCTT | CGGTCCTCCG | ATCGTTGTCA | GAAGTAAGTT | GGCCGCAGTG | TTATCACTCA | 8700 |
| | TGGTTATGGC | AGCACTGCAT | AATTCCTTTA | CTGTCATGCC | ATCCGTAAGA | TGCTTTTCTG | 8760 |
| | TGACTGGTGA | GTACTCAACC | AAGTCATTCT | GAGAATAGTG | TATGCGGCGA | CCGAGTTGCT | 8820 |
| 45 | CTTGCCCGGC | GTCAATACGG | GATAATACCG | CGCCACATAG | CAGAACTTTA | AAAGTGCTCA | 8880 |
| | TCATTGGAAA | ACGTTCTTCG | GGGCGAAAAC | TCTCAAGGAT | CTTACCGCTG | TTGAGATCCA | 8940 |
| 50 | GTTGATGTA | ACCCACTCGT | GCACCCAAC | GATCTTCAGC | ATCTTTTACT | TTCACCAGCG | 9000 |
| | TTTCTGGGTG | AGCAAAAACA | GGAAGGCAAA | ATGCCGCAAA | AAAGGGAATA | AGGGCGACAC | 9060 |
| | GGAAATGTTG | AATACTCATA | CTCTTCCTTT | TTCAATATTA | TTGAAGCATT | TATCAGGGTT | 9120 |
| 55 | ATTGTCTCAT | GAGCGGATAC | ATATTTGAAT | GTATTTAGAA | AAATAAACAA | ATAGGGGTTT | 9180 |
| | CGCGCACATT | TCCCCGAAAA | GTGCCACCT | | | | 9209 |

a (4) INFORMATION FOR SEQ. ID. NO₁: 3:

(i) SEQUENCE CHARACTERISTICS:

- 5 (A) LENGTH: 54 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: DNA (genomic)

a (iii) HYPOTHETICAL: ~~yes~~ no

(iv) ANTI-SENSE: no

15 (ix) SEQUENCE DESCRIPTION: SEQ. ID. NO₁: 3:

a a a 5' ATC ACA GAT CTC TCA CCA TGG ATT TTC AGG TBC AGA TTA TCA GCT
TC 2' 52
20 54

a (5) INFORMATION FOR SEQ. ID. NO₁: 4:

(i) SEQUENCE CHARACTERISTICS:

- 25 (A) LENGTH: 30 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

30 (ii) MOLECULE TYPE: DNA (genomic)

a (iii) HYPOTHETICAL: ~~yes~~ no

35 (iv) ANTI-SENSE: yes

a (ix) SEQUENCE DESCRIPTION: SEQ. ID. NO₁: 4:

a a 40 5' TGC AGC ATC CGT ACG TTT GAT TTC CAG CTT 3'

30

a (6) INFORMATION FOR SEQ. ID. NO₁: 5:

45 (i) SEQUENCE CHARACTERISTICS:

- 50 (A) LENGTH: 384 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: yes

5 (iv) ANTI-SENSE: no

a (ix) SEQUENCE DESCRIPTION: SEQ. ID. NO₁: 5:

10 ATG GAT TTT CAG GTG CAG ATT ATC AGC TTC CTG CTA ATC AGT GCT TCA GTC 51
ATA ATG TCC AGA GGG CAA ATT GTT CTC TCC CAG TCT CCA GCA ATC CTG TCT 102
15 GCA TCT CCA GGG GAG AAG GTC ACA ATG ACT TGC AGG GCC AGC TCA AGT GTA 153
AGT TAC ATC CAC TGG TTC CAG CAG AAG CCA GGA TCC TCC CCC AAA CCC TGG 204
ATT TAT GCC ACA TCC AAC CTG GCT TCT GGA GTC CCT GTT CGC TTC AGT GGC 255
20 AGT GGG TCT GGG ACT TCT TAC TCT CTC ACA ATC AGC AGA GTG GAG GCT GAA 306
GAT GCT GCC ACT TAT TAC TGC CAG CAG TGG ACT AGT AAC CCA CCC ACG TTC 357
25 GGA GGG GGG ACC AAG CTG GAA ATC AAA 384

a (7) INFORMATION FOR SEQ. ID. NO₁: 6:

(i) SEQUENCE CHARACTERISTICS:

- 30 (A) LENGTH: 27 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
35 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: yes

40 (iv) ANTI-SENSE: no

(ix) SEQUENCE DESCRIPTION: SEQ. ID. NO.: 6:

a 45 5' GCG GCT CCC ACG CGT GTC CTG TCC CAG 3'

27

2 (8) INFORMATION FOR SEQ. ID. NO₁: 7:

5 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: yes

15 (iv) ANTI-SENSE: yes

(ix) SEQUENCE DESCRIPTION: SEQ. ID. NO₁: 7:

20 ~~5' GG(G/C) TGT TGT GGT ACC TC(A/G) (A/G)CA GAC (G/A)GT CA 3'~~ 29
22

2 (9) INFORMATION FOR SEQ. ID. NO₁: 8:

25 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 420 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

30 (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: yes

35 (iv) ANTI-SENSE: no

2 (ix) SEQUENCE DESCRIPTION: SEQ. ID. NO₁: 8:

40 ATG GGT TGG AGC CTC ATC TTG CTC TTC CTT GTC GCT GTT GCT ACG CGT GTC 51
CTG TCC CAG GTA CAA CTG CAG CAG CCT GGG GCT GAG CTG GTG AAG CCT GGG 102
GCC TCA GTG AAG ATG TCC TGC AAG GCT TCT GGC TAC ACA TTT ACC AGT TAC 153
45 AAT ATG CAC TGG GTA AAA CAG ACA CCT GGT CGG GGC CTG GAA TGG ATT GGA 204
GCT ATT TAT CCC GGA AAT GGT GAT ACT TCC TAC AAT CAG AAG TTC AAA GGC 255
50 AAG GCC ACA TTG ACT GCA GAC AAA TCC TCC AGC ACA GCC TAC ATG CAG CTC 306
AGC AGC CTG ACA TCT GAG GAC TCT GCG GTC TAT TAC TGT GCA ACA TCG ACT 357

TAC TAC GGC GGT GAC TGG TAC TTC AAT GTC TGG GGC GCA GGG ACC ACG GTC 408

ACC GTC TCT GCA 420

Sub 3
anal. 7